

**Janet Hui-wen Hsiao**  
**Postdoctoral Researcher**

**University of California, San Diego**

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**PROFESSIONAL EXPERIENCE**

**Postdoctoral Researcher, University of California San Diego, USA, Dec 2005 - now**

Member, **Perceptual Expertise Network** (I. Gauthier, PI)

Member, **Temporal Dynamics of Learning Center** (An NSF Science of Learning Center; GW. Cottrell, PI)

Supervisor: Professor Garrison W. Cottrell

Funding Source: National Institutes of Health grant MH57075 (GW. Cottrell, PI), James S. McDonnell Foundation to Perceptual Expertise Network (I. Gauthier, PI), Chiang Ching-kuo Foundation for International Scholarly Exchange (PI, Junior Scholar Grant).

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**EDUCATION**

**Ph.D., Informatics, University of Edinburgh, UK, June 2006**

**Research Area: Cognitive Science**

Member, Institute for Adaptive and Neural Computation

Member, Centre for Connectionist Modeling of Cognitive Processes

Dissertation: *Hemispheric processing in reading Chinese characters: statistical, experimental, and cognitive modeling approaches*

Advisors: Dr. Richard Shillcock, Dr. Marielle Lange, & Dr. Mark Ellison

Collaborators: Professor Michal Lavidor (Bar Ilan University, Israel & University of Hull, UK) & Dr. Chia-ying Lee (Academia Sinica, Taiwan)

**Master of Science, Computing Science, Simon Fraser University, Canada, August 2002**

Dissertation: *Dealing with Semantic Anomalies in a Connectionist Network for Word Prediction*

Advisors: Professor Robert F. Hadley & Professor Fred Popowich

**Bachelor of Science, Computer Science & Information Engineering, National Taiwan University, June 1999**

Rank in class: 3/62

**Summer courses participated:**

Okinawa Computational Neuroscience Course, Japan, June-July, 2008

IGERT Vision and Learning in Humans and Machines Boot Camp, UC San Diego, Sept., 2006.

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**RESEARCH INTERESTS**

My research interests concern *the relationship between brain structure and cognitive processes*, using a variety of approaches including computational modeling and cognitive neuroscience. They can be put into two related directions:

1. **Hemispheric asymmetry in cognitive processes:** I aim to develop theories and models of hemispheric processing to account for hemispheric asymmetry and interaction in perception and cognition. I am interested in examining hemispheric asymmetry in neuroanatomy and incorporate the neuroanatomical findings into computational models to account for behavioral data.

2. **Development of perceptual expertise:** I am interested in examining changes in behavior and neural mechanism in the acquisition of different types of perceptual expertise. I am also interested in the role of the two hemispheres in the development of perceptual expertise.

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## PEER-REVIEWED PUBLICATIONS

### *Publications in Journals:*

- Hsiao, J. H. & Cottrell, G. W. (*accepted*). Not all expertise is holistic, but it may be leftist: The case of Chinese character recognition. *Psychological Science*.
- Hsiao, J. H., Shieh, D., & Cottrell, G. W. (*in press*). Convergence of the visual field split: hemispheric modeling of face and object recognition. *Journal of Cognitive Neuroscience*.
- Hsiao, J. H. & Cottrell, G. W. (*in press*). Two fixations suffice in face recognition. *Psychological Science*.
- Barrington, L., Marks, T., Hsiao, J. H., & Cottrell, G. W. (*in press*). NIMBLE: A kernel density model of saccade-based visual memory. *Journal of Vision*.
- Hsiao, J. H., Shillcock, R., & Lee, C. (2007). Neural correlates of foveal splitting in reading: evidence from an ERP study of Chinese character recognition. *Neuropsychologia*, 45, 1280-1292.
- Hsiao, J. H., Shillcock, R., & Lavidor, M. (2007). An examination of semantic radical combinability effects with lateralized cues in Chinese character recognition. *Perception and Psychophysics*, 69(3), 338-344.
- Hsiao, J. H. & Shillcock, R. (2006). Analysis of a Chinese phonetic compound database: Implications for orthographic processing. *Journal of Psycholinguistic Research*, 35, 405-426.
- Hsiao, J. H., Shillcock, R., & Lavidor, M. (2006). A TMS examination of semantic radical combinability effects in Chinese character recognition. *Brain Research*, 1078, 159-167.
- Hsiao, J. H. & Shillcock, R. (2005). Foveal splitting causes differential processing of Chinese orthography in the male and female brain. *Cognitive Brain Research*, 25, 531-536.

### *Publications in Peer-Reviewed Conference Proceedings*

- Hsiao, J. H., Shahbazi, R., & Cottrell, G. W. (2008). Hemispheric asymmetry in visual perception arises from differential encoding beyond the sensory level. *Proceedings of the Thirtieth Annual Conference of the Cognitive Science Society*. Mahwah, NJ: Lawrence Erlbaum Associates. (Acceptance rate: 30%).
- Hsiao, J. H., Shieh, D., & Cottrell, G. W. (2007). Computational explorations of split architecture in modeling face and object recognition. *Proceedings of the Twenty Ninth Annual Conference of the Cognitive Science Society* (pp. 365-370). Mahwah, NJ: Lawrence Erlbaum Associates.
- Hsiao, J. H. & Shillcock, R. (2006). Hemispheric differences emerge from perceptual learning: Evidence from modeling Chinese character pronunciation. *Proceedings of the Twenty Eighth Annual Conference of the Cognitive Science Society* (pp. 345-350). Mahwah, NJ: Lawrence Erlbaum Associates. (Acceptance rate: 27.8%; **BEST LANGUAGE MODELING PAPER PRIZE WINNER**).
- Hsiao, J. H. & Shillcock, R. (2005). Differences of split and non-split architectures emerged from modeling Chinese character pronunciation. *Proceedings of the Twenty Seventh Annual Conference of the Cognitive Science Society* (pp. 989-994). Mahwah, NJ: Lawrence Erlbaum Associates. (Acceptance rate: 26%).
- Hsiao, J. H. & Shillcock, R. (2004). Connectionist modeling of Chinese character pronunciation based on foveal splitting. *Proceedings of the Twenty Sixth Annual Conference of the Cognitive Science Society* (pp. 601-606). Mahwah, NJ: Lawrence Erlbaum Associates. (Acceptance rate: 31.2%).
- Hsiao, J. H. (2003). A split model to deal with semantic anomalies in the task of word prediction. *Proceedings of the Twenty Fifth Annual Conference of the Cognitive Science Society*. Mahwah, NJ: Lawrence Erlbaum Associates.

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## MANUSCRIPTS SUBMITTED OR IN PREPARATION

- Hsiao, J. H. & Shillcock, R. (*under revision*). Split modeling of Chinese character recognition: A unique opportunity to understand hemispheric processing in visual word recognition.
- Hsiao, J. H. & Shillcock, R. (*under revision*). Hemispheric asymmetry can emerge purely from perceptual learning: Evidence from modeling Chinese character pronunciation.
- Hsiao, J. H., Tanaka, J., & Cottrell, G. W. (*in preparation*). How does learning experience influence performance and eye movements in face and object recognition?
- Hsiao, J. H., Shahbazi, R., & Cottrell, G. W. (*in preparation*). A differential account of hemispheric asymmetry in perception.
- Tsai, L., Lee, C., Yang, F., Hsiao, J. H., & Shillcock, R. (*in preparation*). The optimal viewing position in Chinese word recognition.

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## ORAL PRESENTATIONS AT CONFERENCES

- Hsiao, J. H., Shahbazi, R., & Cottrell, G. W. (2008). *Hemispheric asymmetry in visual perception arises from differential encoding beyond the sensory level*. At the Thirtieth Annual Conference of the Cognitive Science Society, Washington, D.C., USA.
- Hsiao, J. H. & Cottrell, G. W. (2008). *Perception of Chinese characters in novices' and experts' eyes: Similarities and differences between face and Chinese character recognition*. At the 2008 Vision Sciences Society meeting, Naples, USA.
- Hsiao, J. H., Tanaka, J., & Cottrell, G. W. (2008). *How does expertise influence our performance and eye movements in face and object recognition?* At the Inter-Science of Learning Center conference, Pittsburgh, USA.
- Hsiao, J. H., Shahbazi, R., & Cottrell, G. W. (2007). *A differential encoding account of hemispheric asymmetry in visual perception*. At the third annual Computational Cognitive Neuroscience Conference, San Diego, USA.
- Hsiao, J. H., Shieh, D., & Cottrell, G. W. (2007). *Computational explorations of split architecture in modeling face and object recognition*. At the Twenty ninth Annual Conference of the Cognitive Science Society, Nashville, USA.
- Hsiao, J. H. & Shillcock, R. (2006). *Hemispheric Differences emerge from perceptual learning: Evidence from modeling Chinese character pronunciation*. At the Twenty Eighth Annual Conference of the Cognitive Science Society, Vancouver, Canada.
- Hsiao, J. H. & Shillcock, R. (2005). *Differences of split and non-split architectures emerged from modeling Chinese character pronunciation*. At the Twenty Seventh Annual Conference of the Cognitive Science Society, Stresa, Italy.
- Hsiao, J. H. & Shillcock, R. (2004). *Connectionist modeling of Chinese character pronunciation based on foveal splitting*. At the Twenty Sixth Annual Conference of the Cognitive Science Society, Chicago, USA.
- Hsiao, J. H. (2003). *A split model to deal with semantic anomalies in the task of word prediction*. At the Twenty Fifth Annual Conference of the Cognitive Science Society, Boston, USA.
- Hsiao, J. H. (2002). *An explanation of semantic anomalies from semantic predictions in a Hebbian-competitive network*. At the North West Linguistics Conference, Vancouver, Canada.

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## POSTER PRESENTATIONS (SELECTED)

- Hsiao, J. H., Shahbazi, R., & Cottrell, G. W. (2008). *A differential encoding account of hemispheric asymmetry in visual perception*. Cognitive Neuroscience Society Meeting 2008, San Francisco, USA.
- Hsiao, J. H. & Cottrell, G. W. (2007). *Hemispheric interaction in the N170 expertise marker: Phonological modulation in Chinese character recognition*. Poster presentation at the CVR Conference, York University, Canada.
- Hsiao, J. H. & Cottrell, G. W. (2007). *Two fixations are all you need to recognize a face: The influence of number eye fixations on face recognition*. Cognitive Neuroscience Society Meeting 2007, New York, USA & Vision Sciences Society Meeting 2007, Florida, USA.
- Hsiao, J. H., Shillcock, R., & Lee, C. (2006). *ERPs reveal differential processing of Chinese characters in the male and the female brain*. Poster presentation at the Twelfth Annual Meeting of the Organization of Human Brain Mapping, Florence, Italy.
- Hsiao, J. H., Shillcock, R., & Lavidor, M. (2005). *The Semantic Radical Combinability Effects in Chinese Character Recognition: an rTMS study*. Poster presentation at the Twenty Seventh Annual Conference of the Cognitive Science Society, Stresa, Italy & Informatics Jamboree, University of Edinburgh (**2nd prize winner in the Jamboree poster competition**).
- Hsiao, J. H. (2002). *Strong systematicity in connectionist networks*. Poster presentation at the Twelfth Annual Meeting of Canadian Society for Brain, Behavior, and Cognitive Science, Vancouver, Canada.

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## HONORS AND GRANTS

- Junior Scholar Grant** (\$15,000), Chiang Ching-kuo Foundation for International Scholarly Exchange, Taiwan, 2008
- TDLC Trainee Research Grant** (\$1,100), Temporal Dynamics of Learning Center, USA, 2008
- Best Language Modeling Paper Prize** (\$1,000), the Twenty Eighth Annual Conference of the Cognitive Science Society, Vancouver, Canada, 2006

<b>CCK Fellowships for Ph.D. Dissertations</b> (€12,000), Chiang Ching-kuo Foundation for International Scholarly Exchange, Taiwan.	2005
<b>2nd prize, Informatics Jamboree poster competition</b> (£150), University of Edinburgh, UK.	2005
<b>Grant for British-Taiwan Joint Projects</b> (£8,000), the British Academy, UK.	2005
<b>Small Project Grant</b> , University of Edinburgh, UK.	2003
<b>Overseas Research Student scholarship</b> , British Council, UK.	2002-2005
<b>Informatics studentship</b> , University of Edinburgh, UK.	2002-2005
<b>Graduate Fellowship</b> , Simon Fraser University, Canada.	2001
<b>Five Presidential Awards in succession</b> (Top 5% in class), National Taiwan University, Taiwan.	1996-1999
<b>Scholarship from Rotary Club</b> , Taiwan.	1996

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## RESEARCH SKILLS

**Connectionist cognitive modeling** with PDP++, Emergent, Tlearn,  
**Statistical analysis** with SPSS  
**Behavioral experiments** with Eprime  
**Eye tracking experiments**  
 Eyelink II (SR research) video-based eye-tracker  
 Dual-purkinje eye-tracker (Research assistant for studying **reading behavior** with Dr. Scott McDonald)  
**Transcranial Magnetic Stimulation** (TMS) experiments (with Dr. Michal Lavidor)  
**EEG/ERP** experiments (with Dr. Chia-ying Lee)  
 Neuroscan system; data analysis with EEGLAB and source localization software LORETA  
**Programming skills:** Matlab, C++, SQL (database management)

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## TEACHING EXPERIENCE

<i>Undergraduate Independent Study Advisor</i> UCSD	Kelsey Carrio (Cognitive Science), on an <b>eye tracking experiment of visual expertise learning</b> . Reza Shahbaz (Cognitive Science), on <b>connectionist modeling of hemispheric differences in perception</b> . Jason Moore (Computer Science major/Cognitive Science minor), on <b>connectionist modeling of face recognition</b> .	2007-2008
<i>Graduate Seminar Co-organizer</i> Cognitive Science, UCSD	Cognitive science graduate seminar, on <b>hemispheric differences in perception and cognition</b> . (Co-organizer with Professor Garrison W. Cottrell).	2006
<i>Teaching Assistant</i> Informatics, University of Edinburgh	<b>Cognitive Modeling</b>	2004-2005
<i>Sessional Instructor</i> Cognitive Science, Simon Fraser University	<b>Connectionist Psycholinguistics</b>	2003
<i>Teaching Assistant</i> Computing Science, Simon Fraser University	Special Topics in AI, on <b>computationally-oriented theories of human cognitive architecture</b> Artificial Intelligence Survey	2000-2001
<i>Teaching Assistant</i> Computer Science, National Taiwan University	Operating System Design, Introduction to Algorithms, Operating Systems, Introduction to Computers	1999-2000

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## REVIEWING

### Journals:

Psychological Science  
Journal of Experimental Psychology: General  
Neuropsychologia  
International Journal of Psychophysiology  
Language and Cognitive Processes  
Journal of Neurolinguistics  
Journal of Chinese Linguistics

### Peer-reviewed Conference Proceedings:

Annual meetings of the Cognitive Science Society, European Cognitive Science Conference

### Funding Agency:

External reviewer for the Research Grants Council, Hong Kong

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## PROFESSIONAL AFFILIATIONS

Cognitive Science Society  
Cognitive Neuroscience Society  
Vision Sciences Society  
Association of Psychological Science

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## OTHER EXPERIENCE & SERVICE

Chair of the Trainee Committee, Temporal Dynamics of Learning Center	2007-2008
Vice President of Edinburgh Taiwanese Students' Society	2002-2003
Computer Lab Administrator, Computer Science Dept., National Taiwan University	1999-2000
Academic Manager, the Student Council of Computer Science Dept., National Taiwan University	1997-1998
Organizer of National Taiwan University Info Week Festival	1997-1998
Volunteer Tutor in Taipei Family Helper of Chinese Children Fund (C.C.F.)	1997-1998
Math Tutor, Chen-li Math Center, Taiwan	1995-1996

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## REFERENCES

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Tel: +44 (131) 650 4425  
Fax: +44 (131) 650 6626  
Email: rcs@inf.ed.ac.uk  
URL: <http://www.cogsci.ed.ac.uk/~rcs/>

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Ramat Gan 52900, Israel  
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